

WHAT IS CLAIMED IS:

1. An image pickup apparatus comprising:

a solid-state image pickup element formed on a
single semiconductor chip, said solid-state image
pickup element including:

photoelectric conversion units arranged two-
dimensionally;

a plurality of CCDs adapted to transfer charges
generated by said photoelectric conversion units
arranged two-dimensionally, each of said plurality of
CCDs being arranged correspondingly to each line of
photoelectric conversion units;

a plurality of charge detection circuits adapted
to detect the charges from said plurality of CCDs and
supplying corresponding signal levels, each of said
plurality of charge detection circuits being arranged
correspondingly to each CCD;

a common output line to which signals from said
plurality of charge detection circuits are sequentially
output;

a plurality of transfer transistors adapted to
transfer the signals from said plurality of charge
detection circuits to said common output line; and

a scanning circuit adapted to control said
plurality of transfer transistors to sequentially
output the signals from said plurality of charge
detection circuits to said common output line.

2. An apparatus according to claim 1, further comprising a signal processing circuit inserted between said transfer transistor and said charge detection circuit.

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3. An apparatus according to claim 2, wherein said signal processing circuit includes a noise removing circuit adapted to remove a noise component contained in the signal output from said charge detection circuit.

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4. An apparatus according to claim 2, wherein said signal processing circuit includes a clamp circuit.

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5. An apparatus according to claim 1, further comprising a drive circuit adapted to drive said solid-state image pickup element so as to sweep at least a portion of unnecessary charges contained in said photoelectric conversion units arranged two-dimensionally, at input units of said plurality of charge detection circuits.

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6. An apparatus according to claim 1, wherein said charge detection circuit is provided in common to said plurality of CCDs and is connected to said plurality of CCDs through separate transistors.

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7. An apparatus according to claim 1, wherein
said charge detection circuit comprises a control
circuit adapted to execute control to supply power when
an input unit of said charge detection circuit is reset
5 and when the charges from said CCD are converted into a
voltage and output.

8. An apparatus according to claim 1, wherein
said CCD and said charge detection circuit are
10 separated by a well.

9. An apparatus according to claim 1, further
comprising
a lens adapted to form an image of light onto said
15 solid-state image pickup element, and
a signal processing circuit adapted to process a
signal from said solid-state image pickup element.

10. An image pickup apparatus comprising:
20 a solid-state image pickup element formed on a
single semiconductor chip, said solid-state image
pickup element including:
photoelectric conversion units arranged two-
dimensionally;
25 a plurality of CCDs adapted to transfer charges
generated by said photoelectric conversion units, each
of said plurality of CCDs being arranged

correspondingly to each line of photoelectric
conversion units;

5 a plurality of charge detection circuits adapted
to detect the charges from said CCDs and supplying
corresponding signal levels, each of said plurality of
charge detection circuits being arranged
correspondingly to each CCD; and

10 a plurality of A/D conversion circuits adapted to
convert the signals from said charge detection circuits
into digital signals, each of said A/D conversion
circuits being arranged correspondingly to each charge
detection circuit.

11. An apparatus according to claim 10, wherein
15 said A/D conversion circuit comprises a
sequential-comparison-type circuit.

12. An apparatus according to claim 10, further
comprising

20 a lens adapted to form an image of light onto said
solid-state image pickup element, and

a signal processing circuit adapted to process a
signal from said solid-state image pickup element.

25 13. An apparatus according to claim 11, wherein
said CCD and said charge detection circuit are
separated by a well.